

## Claims

Having set forth the nature of the present invention, what is claimed is:

1        1. A device for diffusion of solutions containing active agents, comprising:  
2        a porous diffusion element impregnated with said solution;  
3        a heating element to heat said porous element promoting evaporation of said active  
4 agents contained in said solution; and,  
5        wherein said heating element comprises a layer of resistive material deposited upon  
6 a portion of said porous diffusion element.

1        2. A device as recited in claim 1, wherein said layer of resistive material is adapted  
2 to receive electrical contacts in electrical communication with an electric power source.

1        3. A device as recited in claims 1 or 2, wherein said layer of resistive material  
2 comprises a mixture of two inks, one said ink being graphite-based having low electrical  
3 resistivity and said other ink having insulating properties.

1        4. A device as recited in claims 1 or 2, wherein said porous diffusion element  
2 includes an area devoid of said layer of resistive material to facilitate evaporation of said  
3 active agents.

1        5. A device as recited in claim 3, wherein said porous diffusion element includes an  
2 area devoid of said layer of resistive material to facilitate evaporation of said active agents.

1           6. A device as recited in claims 1 or 2, wherein said porous element comprises a  
2 cylindrical shape and wherein said layer of resistive material is deposited toward one end  
3 of said porous element.

1           7. A device as recited in claim 3, wherein said porous element comprises a  
2 cylindrical shape and wherein said layer of resistive material is deposited toward one end  
3 of said porous element.

1           8. A device as recited in claim 4, wherein said porous element comprises a  
2 cylindrical shape and wherein said layer of resistive material is deposited toward one end  
3 of said porous element.

1           9. A device as recited in any one of the claims 1-2, wherein said porous element  
2 comprises a plate shape and said layer of resistive material is deposited on a portion of  
3 only one face of said porous element.

1           10. A method for manufacturing an element for diffusing solutions with active  
2 agents comprising the following steps:

3           producing a porous element capable of absorbing a solution holding active agents;

4           depositing a layer of electrically resistive material over a portion of said porous  
5 element; and,

6           applying heat to said porous element to allow drying and polymerization of said  
7 layer of resistive material.

1           11. A method for manufacturing as recited in claim 10, wherein said deposition  
2 step comprises the step of silkscreen printing, spray deposition, or immersion deposition.

1           12. A method for manufacturing as recited claims 10 or 11, wherein said step of  
2 applying heat comprises treatment in a conventional hot-air oven or radiant heating by  
3 means of infrared lamps.

1           13. An electric diffuser for diffusion of solutions containing active agents,  
2 comprising:

3           a refill having a container holding a solution with active agents and a porous  
4 diffusion element impregnated with said solution, wherein a surface portion of said  
5 diffusion element includes a layer of resistive material; and

6           a coupling device for replacement of said refill and for electrical contact with said  
7 layer of resistive material, wherein said coupling device is in electrical contact with an  
8 electrical power plug.

1           14. An electric diffuser as recited in claim 13, wherein said coupling device further  
2 comprises two levers biased against one another with a torsion spring, and wherein said  
3 two levers are adapted to form two jaws for clamping said porous element on said layer of  
4 resistive material.

1           15. An electric diffuser as recited in claims 13 or 14, wherein said coupling device  
2 includes metal blades for contacting said layer of resistive material and wherein said metal  
3 blades are electrically connected to an electric power plug.

1           16. An electric diffuser for diffusion of solutions containing active agents,  
2 comprising:

3           a refill comprising:

4                   a container containing a solution with active agents,

5                   a porous element impregnated with said active agents, and

6                   a layer of resistive material deposited on a surface portion of said porous  
7 element;

8           an electrical plug for connection to an electrical outlet, said plug including  
9 electrical contacts adapted to contact said resistive layer deposited on said porous element;  
10 and

11           a coupling device connecting said electrical plug to said refill, said coupling device  
12 adapted to force said electrical contacts of said electrical plug into electrical contact with  
13 said resistive layer deposited on said porous element.

1           17. An electric diffuser as recited in claim 16, wherein said porous element is plate  
2 shaped and partially inserted into said container, and wherein said resistive layer comprises  
3 a strip disposed on a portion of said porous element outside of said container, and wherein  
4 said strip includes an axis along its greatest length and said porous element includes an

5 axis along its greatest length, said strip axis forming an angle of 45° relative to said porous  
6 element axis.

1 18. An electric diffuser as recited in claim 16, wherein said porous element is disc  
2 shaped and said container is doughnut shaped, said container having an inner  
3 circumference defining a center aperture, and wherein said porous element is integrated  
4 with said container such that a portion of said porous element is exposed to ambient air  
5 through said center aperture on one side and wherein said layer of resistive material is  
6 disposed on the other side of said porous element within a central portion of said porous  
7 element.

1 19. An electric diffuser as recited in any one of claims 16-18, wherein said  
2 coupling device is comprised of insulating material to ensure electrical insulation and  
3 includes holes or slots to allow for diffusion of said active agents.